

VOLVO TRUCK CORPORATION

OFFSET PROJECT

Project 1: Low Emission Natural Gas Vehicle (LENGV)

This project is an Appendix E Project under the Consent Decree, and an Appendix J Project under the Settlement Agreement. The project involves the development and field testing of medium-duty trucks fuelled with Compressed Natural Gas (CNG). Volvo Truck Corporation (VTC) expects the CNG-fuelled engine to achieve emission levels of 1.5 g/bhp-hr NO_x plus NMHC and 0.02 g/bhp-hr PM.

The goal of the project is to design, develop and verify a low emission version of a CNG-fuelled medium-duty truck, and to evaluate the technology in field test. The field test program and its follow-up will be carried out in the United States on 12 vehicles, all which will be placed in California. The vehicles in the field test will be sold for regular use, and will not be owned by VTC. VTC intends to deliver the field test vehicles in two phases, and to test them over a period of between 1½ and 3 years.

With the exception of some basic combustion development work, VTC intends to undertake all phases of this project internally.

The CNG-fuelled trucks are anticipated to have reduced NO_x emissions from the base diesel engine (which emits approximately 4.0 gm NO_x/bhp-hr) of approximately 0.3 tons per year. The total NO_x savings anticipated from the operation of the twelve CNG-fuelled trucks instead of equivalent number of diesel engined trucks will be approximately 4 tons NO_x per year. These NO_x savings will occur throughout California, along the driving routes of the CNG-fuelled vehicles.

VTC will fund this project in the amount of \$4,750,000.

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Project 2: Combined Exhaust Aftertreatment System (CEATS)

This project is a Company Proposed Project under the Consent Decree. The project entails the development and testing of an exhaust aftertreatment system consisting of two parts, a particulate filter and a Selective Catalytic Reduction (SCR) unit. Through use of the combined exhaust aftertreatment system (CEATS), Volvo Truck Corporation (VTC) expects to achieve emission levels of 1.5 g/bhp-hr NO_x plus NMHC and 0.02 g/bhp-hr PM.

The goal of the project is to design, develop and verify the combined aftertreatment system for NO_x and PM. VTC will design and optimize the total system, but will use sub-suppliers for some of the components. The function and efficiency of the exhaust aftertreatment system will be tested and verified in both engine bench tests and field tests.

The field test program and its follow-up will be carried out in the Northeastern area of the U.S. The field test will be conducted on 30 vehicles, to be placed in fleets in the Northeast corridor. Fleet selection will be carried out in partnership with Northeast States Coordinated Air Use Management and Volvo Trucks North America. The field test trucks will be equipped with 12-liter diesel-fuelled engines and will be designed for long-haul operation. The anticipated typical accumulated mileage during the two-year field testing will be 150,000 miles. The vehicles in the field test will be sold for regular use and will not be owned by VTC. However, the components constituting the CEATS will be owned by VTC. At the end of the field test, all vehicles will be rebuilt to standard vehicles.

The trucks equipped with the CEATS are anticipated to have reduced NO_x emissions from the base engine (which emits approximately 4.0 gm NO_x/bhp-hr) of approximately one-half ton per year. The total NO_x savings anticipated from the installation and operation of the CEATS on thirty trucks will be approximately 15 tons of NO_x per year. The emissions savings will be spread throughout the Northeast along the driving routes of the equipped vehicles.

VTC will fund this project in the amount of \$4,050,000.